

Claim 17 depends from claim 12 and specifies a union nut operatively secured to a waveguide for threading relative to the antenna at any angular orientation. Claim 30 depends on claim 25 and includes similar limitations. Claim 31 depends from Claim 30.

The process control instrument includes a universal connector 26 described at page 10, lines 8-18. The connector 26 includes a waveguide 46, a loop launcher 48 and a union nut 50, all shown in Fig. 6. The union nut 50 is received on the shoulder 64 and is retained thereon with a conventional snap ring 66. As described at page 13, lines 8-16, the universal connector 26 provides a swivel connection between the waveguide 46 and the electronics enclosure 34. Particularly, as described, the union nut 50 is loosely received on the waveguide 46 captured between the shoulder 64 and the snap ring 66. It can be turned freely relative to the waveguide. The waveguide can thereafter be positioned at any angular orientation independently of the antenna and then tightened. As such, the specification is enabling to one skilled in the art to which it pertains and the rejection ought be withdrawn.

Applicants traverse the rejection of claims 1-5, 7, 9-17, 25 and 28-33 as anticipated by Wien et al. U.S. Patent No. 6,202,485.

Independent claim 1 specifies a process control instrument comprising a control for generating or receiving a high frequency signal. A waveguide comprises a cylindrical housing closed at one end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire having a first straight leg electrically connected at one end to the control and extending into the first waveguide a first select length, a second straight leg connected at one to the rear wall and extending into the waveguide a second select length, greater than the first select length, and a curved

middle section connecting other ends of the first and second straight legs. An antenna is operatively connected to the waveguide.

An anticipation can be established only by a single prior art reference disclosing each and every element of the claim, arranged as in the claim. Wien et al. does not anticipate claim 1. Particularly, Wien et al. does not include a loop launcher as recited in the claim.

In support of the rejection, the action simply repeats the claim language and references passages and figures of Wien et al. relative to the claim language. Particularly, with respect to the loop launcher, the action merely references a single line of the specification, namely, col. 5, line 51 and Fig. 5.

Fig. 5 of Wien et al. illustrates the loop launcher 5. As is apparent in both Fig. 1 and Fig. 5, the loop launcher 5 is illustrated as a piece of wire having a single bend connecting two apparently straight sections. There is no middle section connecting ends of first and second straight legs. The ends of the first and second straight legs are directly connected to one another. More particularly, in the illustrated embodiment of Wien et al., the first leg connected to the control extends into the waveguide a length greater than the length which the second leg extends into the waveguide. As such, Wien et al. does not anticipate claim 1. The specification at col. 5, lines 51-54 is apparently inconsistent with the drawing figures. Particularly, the specification states that:

The transmitter wire has three regions, a straight section running at a distance from the rear wall 2 of the antenna 4, and two legs adjoining said section and leading from the section to both ends.

There is no such transmitter wire illustrated in the Wien et al. reference. In any event, what would be considered the center section of the described transmitter wire is clearly defined as a “straight section”.

Wien et al. at col. 5, lines 40-42 specifies that the transmitter wire is as described in DE-A19629593. This German application is the priority for cited Burger Patent 5,880,698. The Burger reference discloses a straight middle section connecting straight leg sections. The straight leg sections appear to be of equal length.

Regardless whether Wien et al. is interpreted based on the illustrated transmitter wire or the referenced transmitter wire in the Burger reference, it does not anticipate independent claim 1.

Claims 2-5, 7 and 9-11 depend from claim 1 and are therefore likewise not anticipated. Moreover, claim 2 specifies that the second leg is located at a center axis of the waveguide. No leg in Wien et al. is located at a center axis of the waveguide. Nor does the action identify how it could be characterized as such.

Claim 4 specifies that the first select length is about a quarter of a wave length. The recitation at col. 5, line 55, of Wien et al. discusses the distance between the rear wall and the straight middle section being equal to a quarter wave length. The first section being angled, would necessarily be of a greater length than a quarter of a wave length. Claim 4 is not anticipated for this reason as well.

Claim 5 specifies that the waveguide has a length of about three-quarter waveguide wave length. The action references col. 5, line 1 of Wien et al. This passage merely recites that the

housing is a waveguide. There is no discussion of length. Claim 5 is not anticipated for this reason as well.

Claim 7 specifies that the loop launcher is asymmetrically placed entirely on one side of an axis of the waveguide. There is no such teaching in Wien et al. Nor does the action reference any such teaching. Claim 7 is not anticipated for this reason as well.

Claim 10 specifies a coupling cavity surrounding the waveguide for coupling the antenna to the waveguide. There is no such coupling cavity in Wien et al. The action references element 31. Element 31 is an external thread on the antenna. It is threaded into the waveguide. Being internal to the waveguide, it not only does not comprise a coupling cavity, it does not surround the waveguide. Claim 10 is not anticipated for this reason as well.

Claim 11 depends from claim 10 and specifies that the coupling cavity is formed of metal to define an intermediate waveguide. There is clearly no such intermediate waveguide disclosed or suggested in Wien et al. Claim 11 is not anticipated for this reason as well.

Independent claim 12 specifies a process control instrument comprising a control for generating or receiving a high frequency signal. A waveguide comprises a cylindrical housing open at a distal end and closed at an inner end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire electrically connected to the control and comprises a wire electrically connected at one end to the control and extending into the waveguide and connected at another end to the rear wall. A coupling cavity comprises an open cylinder surrounding the waveguide and extending beyond the waveguide open end. An antenna is operatively coupled to the coupling cavity and the waveguide.

Wien et al. does not disclose or suggest a coupling cavity, as recited in claim 12. Again, the action references numeral 31 as a coupling cavity comprising an open cylinder surrounding the waveguide and extending beyond the waveguide open end. Attention is directed to Fig. 6 which illustrates the antenna 4 and disclosure at col. 5, lines 28-32, which notes that the insert 3 and antenna 4 are a single component with an external thread 31. This thread is screwed into an internal thread 131 in the housing section 13. As such, in Wien et al. the antenna 4 is directly connected to the waveguide. There is no coupling cavity.

Because Wien et al. does not disclose each and every element of claim 12, arranged as in the claim, there is no anticipation and the rejection is improper.

Claims 13-17 depend from claim 12 and are believed allowable for the same reasons therefor. Moreover, claims 13-15 disclose further details of the coupling cavity. As Wien et al. does not disclose a coupling cavity in any form, these claims clearly cannot be anticipated.

Claim 16 specifies details on the loop launcher similar to that recited in independent claim 1. The deficiencies of Wien et al. relative to claim 1 are repeated. Claim 16 is not anticipated for this reason as well.

Claim 17 specifies a union nut operatively secured to the waveguide for threading relative to the antenna at any angular orientation. The action does not identify any union nut in Wien et al. There is a general reference to Fig. 5. There is no nut of any sort illustrated in Fig. 5, let alone a union nut. Claim 17 is not anticipated for this reason as well.

Independent claim 25 specifies a process control instrument comprising a housing and a control in the housing for generating or receiving a high frequency signal. A waveguide comprises

a cylindrical housing closed at one end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire electrically connected at one end to the control and extending into the waveguide and connected at another end to the rear wall to develop an asymmetrical radiated electrical magnetic field. An antenna is operatively coupled to the waveguide. Means are provided for rotatably mounting the waveguide to the housing so that the housing and the loop launcher can be independently oriented relative to a process vessel.

Initially, it is not apparent that the loop launcher of Wien et al. would develop an asymmetrical radiated electrical magnetic field. The action references col. 2, line 11. There is no such discussion in the referenced passage.

In any event, Wien et al. do not disclose or suggest any means for rotatably mounting the waveguide to the housing so that the housing and the loop launcher can be independently oriented relative to a process vessel.

The action references col. 7, line 35. The referenced paragraph discusses the first element 3A of the antenna and having two projecting latching tabs (referenced as 31 in the specification, but presumably 33 in the Figs.). These prevent rotation of the first element. It is not apparent how tabs that prevent rotation teach means for rotatably mounting a waveguide to the housing so that the housing and loop launcher can be independently oriented relative to a process vessel. There is no structure in Wien et al. that performs the function of mounting a waveguide to the housing so that the housing can be independently oriented relative to the process vessel or a loop launcher can be independently oriented relative to a process vessel. As such, claim 25 is not anticipated by Wien et al.

Claims 28-33 depend from claim 25 and are likewise not anticipated. Moreover, claim 25 specifies that the waveguide comprises a two piece assembly including a waveguide adaptor operatively secured to the housing and a waveguide adaptor tube extending from the waveguide adaptor. The action references col. 5, line 1 of Wien et al. This passage does not disclose or suggest a two piece housing. Nor did the drawings illustrate a two piece housing. Claim 28 is not anticipated for this reason as well.

Claim 30 further specifies a union nut. As discussed above, Wien et al. does not disclose or suggest a union nut. It does not disclose any nut. Claim is not anticipated from this reason as well. Claim 33 specifies details of the loop launcher, similar to those discussed above relative to claim 1. No such loop launcher is disclosed or suggested in Wien et al. Claim 33 is not anticipated for this reason as well.

In addition to lack of anticipation, Wien et al. is not remotely relevant to any independent claims 1, 12 and 25. Wien does not suggest the invention of any of these claims. Therefore, any obviousness rejection would also be improper.

For the above reasons, claims 1-5, 7, 9-17, 25 and 28-33 are believed allowable and withdrawal of the rejection is requested.

Applicants traverse the rejection of claims 6 and 8 as obvious over Wien et al. Claims 6 and 8 depend from claim 1. Claim 6 specifies that the curved middle section has a radius of about 10 mm. As discussed above, Wien et al. does not disclose a curved middle section. It discloses either no middle section or a straight middle section. A straight middle section cannot have a radius. It would not be obvious to one skilled in the art to modify a straight section to make it

curved and to have a radius of about 10 mm. Claim 6 is not obvious for this reason, as well as the reasons discussed relative to claim 1.

Claim 8 specifies that the first leg is parallel with the second leg. Wien et al. does not disclose or suggest that the legs are parallel. Nor could they be. If the two legs illustrated in Wien et al. were parallel, they would be in contact with one another. The device would not operate. The Burger reference discloses that the legs are each at an angle relative to the center section and to one another. There is absolutely no suggestion that they be parallel. Claim 8 is not obvious.

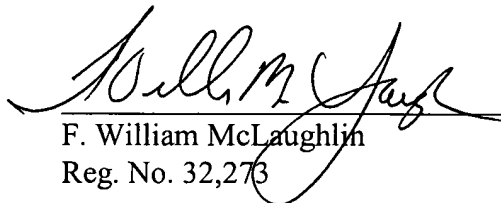
For the above reasons, claims 6 and 8 are believed allowable and withdrawal of the rejection is requested.

Applicants note the allowability of claims 26 and 27. However, as the claims on which they depend are believed allowable, the claims are not rewritten in independent form at this time.

Reconsideration of the application and allowance and passage to issue are requested.

Respectfully submitted,

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